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National Wood In Transportation Program



Status Report

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The National Wood In Transportation Program

Northeastern Area
State and Private Forestry

February 2001

FOREWORD

Modern timber bridges combine today's technology with a renewable American resource. Improvements in wood preservation and the design of wooden structures make the modern timber bridge an economical, safe, and attractive alternative to other materials for bridge construction in many situations. To date, the Wood In Transportation (WIT) Program has funded more than 250 timber bridge projects, 220 of which are complete. The WIT Program has also funded 94 special projects, 66 of which are now complete. Many of these special projects are focused on broadening the former National Timber Bridge Initiative into other wood-in-transportation applications.

In Fiscal Year 1996, the WIT Program developed guidelines for commercialization projects. The goal of these projects is to fully commercialize technology that has been successfully developed and demonstrated for transportation-related structures. To date, nineteen commercialization projects have been funded. WIT projects have assisted in improving the nation's transportation system and have revitalized local economies. In Fiscal Year 2000, the WIT Program focused primarily on proven technology developed during the previous ten years of the program.

Increasing interest in wood-in-transportation structures, combined with a growing demand for technical information, indicates there is a real desire for the services provided by the program. As WIT technology moves into the future, the Northeastern Area will continue to provide reliable leadership and direction in the sustainable use of our nation's forest resources for transportation purposes well into the 21st century.



KATHRYN P. MALONEY
Northeastern Area Director

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EXECUTIVE SUMMARY

A significant opportunity exists in the United States to improve local transportation networks and revitalize local economies by using wood for bridges and other transportation structures. Approximately 28 percent of the 592,000 highway bridges across the nation are in need of repair or replacement.^{1/}

Modern timber bridge technology provides an opportunity to improve the nation's infrastructure. Many bridges, particularly those on double-lane, rural roads, are ideally suited for replacement with wood. Improvements in wood treatment, engineered wood composite products, and bridge designs provide for the increased use of wood as a construction material to assist in the cost-effective rebuilding of our nation's infrastructure.

To address this opportunity, the United States Congress funded the Wood In Transportation Program, formerly known as the National Timber Bridge Initiative, beginning in Fiscal Year 1989. The purpose of this Status Report is to describe the WIT Program and its accomplishments to date.

^{1/} Anonymous. Better Roads 2000 Bridge Inventory. Better Roads, Vol. 69, No. II, November 2000, p. 26.

PROGRAM DESCRIPTION

Mission Statement

To diversify local economies by:

- *Improving transportation networks which, in turn, improves community vitality.*
- *Expanding the range of markets for wood products.*
- *Creating service industries for wood-in-transportation structures.*
- *Commercializing modern timber bridge technology.*
- *Utilizing community resources such as local timber and local labor.*
- *Improving America's forests through stewardship.*

Vision and Goals

The WIT Program's vision and goals are being achieved through four distinct, yet interrelated components. These are:

- Wood In Transportation Demonstration Projects
- Research
- Technology Transfer and Information Management
- Rural Revitalization

Outlook

In the next year, the WIT Program will work toward the following :

- Continuing to commercialize existing technology that has been developed since Fiscal Year 1989.
- Continuing research efforts that will further refine the performance and cost competitiveness of transportation structures using locally-available timber resources.
- Increasing informational and educational efforts:
 - Improving and maintaining the National Wood In Transportation Information Center's library.
 - Making technical information available to the public through the Internet.
- Broadening timber bridge technology into other areas of transportation-related uses such as rails-to-trails, docks and marine facilities, sign and light posts, portable timber bridges, culverts, sound barriers, retaining walls, and railings.
- Continuing to promote the WIT Program as an important tool in the stewardship of America's forests.

PROGRAM COMPONENTS

Wood In Transportation Demonstration Projects

Timber Bridges —

Demonstration timber bridges show people how wood and new technology provide alternatives to traditional bridge construction techniques and materials. Some bridges are constructed using local labor and local timber resources, thus stimulating the area's economy. Using local timber also improves the health of our forests by developing a use for low-value wood. Many of the demonstration timber bridges are cost-competitive with other bridge materials primarily because of :

- Lower costs for material and construction
- Lower maintenance costs
- Lower life-cycle costs

As of November 2000, 220 vehicular and pedestrian timber bridge projects have been completed with WIT assistance. The program has funded a variety of timber bridge designs. One design consists of placing timbers on edge and holding them together by running threaded steel rods from one side to the other. Another type of design utilizes glue-joined lumber. Demonstration timber bridges have been constructed of hardwoods, softwoods, and a combination of wood and other materials.

Some potential advantages of wooden bridges are:

Wood Type: *Most tree species; often locally available*
Amount: *15,000 board feet [32 ft.(W) by 30 ft.(L) span]*
Maintenance: *Low; no painting of treated timbers*
Chemical Effects: *De-icing agents do not affect wood*
Life Expectancy: *30-50 years*
Construction Time: *Minimal*
Use: *All road systems and traffic loads*
Treatments: *Basic wood preservation treatments
approved by the Environmental Protection Agency*

Table 1
Total Funding for Wood In Transportation Demonstration Projects
Fiscal Years 1989 through 2000

Goal	Combined 1989-1995 Final	1996 Final	1997 Final	1998 Final	1999 Final	2000 Final	Total
..... Dollars in thousands							
Vehicular Bridge							
Projects	(197)	(10)	(1)	—	—	(2)	(210)
Federal Contribution	\$6,644	\$432	\$50	—	—	\$80	\$7,206
Coop. Contribution	14,581	722	244	—	—	337	15,884
Subtotal	21,225	1,154	294	—	—	417	23,090
Pedestrian Bridge							
Projects	(28)	(6)	(5)	(1)	—	(1)	(41)
Federal Contribution	317	54	43	22	—	38	474
Coop. Contribution	1,036	94	97	22	—	38	1,287
Subtotal	1,353	148	140	44	—	76	1,761
Special Projects	(62)	(10)	(8)	(5)	(4)	(5)	(94)
Federal Contribution	1,072	303	193	101	100	93	1,862
Coop. Contribution	1,793	354	318	131	134	123	2,853
Subtotal	2,865	657	511	232	234	216	4,715
Commercialization							
Projects	(3)	(1)	(2)	(4)	(5)	(4)	(19)
Federal Contribution	2,070	100	90	417	449	363	3,489
Coop. Contribution	4,106	164	158	593	1,330	575	6,926
Subtotal	6,176	264	248	1,010	1,779	938	10,415
Other Projects	—	(1)	(1)	(3)	(1)	(1)	(7)
Federal Contribution	—	45	45	50	45	45	230
Coop. Contribution	—	—	—	—	—	—	—
Subtotal	—	45	45	50	45	45	230
Total	\$31,619	\$2,268	\$1,238	\$1,336	\$2,058	\$1,692	\$40,211

The following table illustrates the total federal funding, by state, for demonstration timber bridge projects since the beginning of the WIT Program. The table does not include bridges on National Forest System lands, special projects, or commercialization projects.

Table 2
Total Federal Funding for
Demonstration Vehicular Bridge Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Bridges to Result from all Projects*
Alabama	\$526,099	12	\$0	0	\$526,099	14
Alaska	92,635	3	50,000	1	142,635	4
Arizona	64,500	2	0	0	64,500	2
Arkansas	133,600	4	0	0	133,600	4
California	61,750	2	0	0	61,750	2
Colorado	132,500	3	0	0	132,500	3
Connecticut	60,000	1	0	0	60,000	1
Delaware	0	0	0	0	0	0
Dist. of Columbia	0	0	0	0	0	0
Florida	40,000	2	0	0	40,000	2
Georgia	260,750	9	0	0	260,750	9
Hawaii	0	0	0	0	0	0
Idaho	244,400	9	0	0	244,400	9
Illinois	176,500	5	0	0	176,500	5
Indiana	58,600	2	0	0	58,600	2
Iowa	165,700	6	0	0	165,700	6
Kansas	213,000	5	0	0	213,000	5
Kentucky	45,000	1	0	0	45,000	1
Louisiana	60,000	1	0	0	60,000	1
Maine	87,945	3	0	0	87,945	3
Maryland	188,540	6	0	0	188,540	6
Massachusetts	120,000	3	0	0	120,000	3
Michigan	536,262	15	0	0	536,262	17
Minnesota	89,000	2	0	0	89,000	2
Mississippi	249,377	9	0	0	249,377	9
Missouri	60,000	2	0	0	60,000	2
Montana	203,887	7	0	0	203,887	7

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Table 2 (continued)
Total Federal Funding for
Demonstration Vehicular Bridge Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Bridges to Result from all Projects*
Nebraska	108,627	3	0	0	108,627	3
Nevada	30,000	1	0	0	30,000	1
New Hampshire	62,000	2	0	0	62,000	2
New Jersey	20,550	1	0	0	20,550	1
New Mexico	103,375	3	0	0	103,375	3
New York	418,681	14	0	0	418,681	14
North Carolina	0	0	0	0	0	0
North Dakota	141,700	5	0	0	141,700	5
Ohio	287,231	9	0	0	287,231	9
Oklahoma	203,862	7	0	0	203,862	7
Oregon	228,000	5	0	0	228,000	5
Pennsylvania	90,000	3	0	0	90,000	3
Rhode Island	48,555	2	0	0	48,555	2
South Carolina	75,000	3	0	0	75,000	3
South Dakota	89,600	3	0	0	89,600	4
Tennessee	36,560	1	0	0	36,560	1
Texas	28,100	1	0	0	28,100	1
Utah	60,000	2	0	0	60,000	2
Vermont	55,800	2	0	0	55,800	2
Virginia	110,000	4	0	0	110,000	4
Washington	138,500	4	0	0	138,500	4
West Virginia	726,426	13	30,000	1	756,426	14
Wisconsin	109,697	3	0	0	109,697	3
Wyoming	83,135	3	0	0	83,135	3
Total	\$7,125,444	208	\$80,000	2	\$7,205,444	215

* The total number of bridges that will result upon completion of all funded projects (FY 1989-2000).

The following table illustrates the total federal funding, by state, for demonstration timber bridge projects since the beginning of the WIT Program. The table does not include bridges on National Forest System lands, special projects, or commercialization projects.

Table 3
Total Federal Funding for
Demonstration Pedestrian Bridge Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Bridges to Result from all Projects*
Alabama	\$0	0	\$0	0	\$0	0
Alaska	10,000	1	0	0	10,000	1
Arizona	10,000	1	0	0	10,000	1
Arkansas	0	0	0	0	0	0
California	9,750	1	0	0	9,750	1
Colorado	10,000	1	0	0	10,000	1
Connecticut	13,500	2	0	0	13,500	2
Delaware	0	0	0	0	0	0
Dist. of Columbia	0	0	0	0	0	0
Florida	20,000	2	0	0	20,000	2
Georgia	19,440	2	0	0	19,440	2
Hawaii	0	0	0	0	0	0
Idaho	0	0	0	0	0	0
Illinois	0	0	0	0	0	0
Indiana	0	0	0	0	0	0
Iowa	0	0	0	0	0	0
Kansas	0	0	0	0	0	0
Kentucky	10,000	1	0	0	10,000	1
Louisiana	9,455	1	0	0	9,455	1
Maine	10,000	1	0	0	10,000	1
Maryland	0	0	0	0	0	0
Massachusetts	0	0	0	0	0	0
Michigan	10,000	1	0	0	10,000	1
Minnesota	0	0	0	0	0	0
Mississippi	10,000	1	0	0	10,000	1
Missouri	10,000	1	0	0	10,000	1
Montana	7,445	1	0	0	7,445	1

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Table 3 (continued)
Total Federal Funding for
Demonstration Pedestrian Bridge Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Bridges to Result from all Projects*
Nebraska	60,000	1	0	0	60,000	1
Nevada	0	0	0	0	0	0
New Hampshire	10,000	1	0	0	10,000	1
New Jersey	10,000	1	0	0	10,000	1
New Mexico	0	0	0	0	0	0
New York	16,600	2	0	0	16,600	2
North Carolina	25,000	1	0	0	25,000	1
North Dakota	0	0	0	0	0	0
Ohio	0	0	0	0	0	0
Oklahoma	7,350	1	0	0	7,350	1
Oregon	10,000	1	0	0	10,000	1
Pennsylvania	30,000	3	0	0	30,000	4
Rhode Island	10,000	1	0	0	10,000	1
South Carolina	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0
Tennessee	40,000	4	0	0	40,000	4
Texas	0	0	0	0	0	0
Utah	2,270	2	37,500	1	39,770	3
Vermont	0	0	0	0	0	0
Virginia	10,000	1	0	0	10,000	1
Washington	0	0	0	0	0	0
West Virginia	34,860	3	0	0	34,860	3
Wisconsin	0	0	0	0	0	0
Wyoming	10,000	1	0	0	10,000	1
Total	\$435,670	40	\$37,500	1	\$473,170	42

* The total number of bridges that will result upon completion of all funded projects (FY 1989-2000).

Special Projects —

Special projects demonstrate new technologies or methods for reducing transportation system costs. They also study markets or perceptions related to the use of timber in transportation structures. Special projects enable cooperators to initiate endeavors or implement strategies that will stimulate local, regional, or national economies. They provide an avenue for the WIT Program to broaden into other wood-in-transportation applications, such as retaining walls, portable bridges for temporary access, and railroad infrastructure. Since 1989, 96 special projects have been funded. Copies of summaries of special projects funded from 1989 to 2000 are available from the National Wood In Transportation Information Center (contact information listed on page 16).

Table 4
Total Federal Funding for Special Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Structures to Result from all Projects*
Alabama	\$18,400	1	\$0	0	\$18,400	1
Alaska	49,910	1	0	0	49,910	1
Arizona	0	0	0	0	0	0
Arkansas	0	0	0	0	0	0
California	0	0	0	0	0	0
Colorado	20,000	1	0	0	20,000	0
Connecticut	0	0	0	0	0	0
Delaware	0	0	0	0	0	0
Dist. of Columbia	10,000	1	0	0	10,000	0
Florida	0	0	0	0	0	0
Georgia	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0
Idaho	5,000	1	0	0	5,000	0
Illinois	0	0	0	0	0	0
Indiana	11,000	1	0	0	11,000	1
Iowa	45,000	2	0	0	45,000	1

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Table 4 (continued)
Total Federal Funding for Special Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Structures to Result from all Projects*
Kansas	8,200	2	0	0	8,200	2
Kentucky	0	0	0	0	0	0
Louisiana	0	0	0	0	0	0
Maine	10,000	1	0	0	10,000	1
Maryland	11,500	1	0	0	11,500	2
Massachusetts	25,000	1	50,000	1	75,000	0
Michigan	19,300	2	10,000	1	29,300	0
Minnesota	2,000	1	0	0	2,000	0
Mississippi	80,000	12	13,000	1	93,000	1
Missouri	0	0	0	0	0	0
Montana	0	0	0	0	0	0
Nebraska	23,776	2	0	0	23,776	0
Nevada	0	0	0	0	0	0
New Hampshire	12,500	1	0	0	12,500	0
New Jersey	30,000	1	0	0	30,000	0
New Mexico	18,886	1	0	0	18,886	0
New York	177,300	7	0	0	177,300	8
North Carolina	0	0	0	0	0	0
North Dakota	0	0	0	0	0	0
Ohio	4,771	1	0	0	4,771	0
Oklahoma	0	0	0	0	0	0
Oregon	10,786	1	0	0	10,786	0
Pennsylvania	238,720	10	20,000	2	258,720	5
Rhode Island	0	0	0	0	0	0
South Carolina	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0
Tennessee	0	0	0	0	0	0
Texas	0	0	0	0	0	0
Utah	0	0	0	0	0	0
Vermont	32,000	2	0	0	27,887	1
Virginia	143,123	7	0	0	143,123	3
Washington	27,887	2	0	0	27,887	0
West Virginia	723,466	25	0	0	723,460	4
Wisconsin	10,000	1	0	0	10,000	0
Wyoming	0	0	0	0	0	0
Total	\$1,768,525	89	\$93,000	5	\$1,861,525	31

* The total number of structures that will result upon completion of all funded projects (FY 1989-2000).

Commercialization Projects —

In Fiscal Year 2000, the Wood In Transportation demonstration program focused funds on commercialization projects. The WIT Program began funding commercialization projects in 1996, and since then has funded projects in Alabama, Alaska, Florida, Georgia, Iowa, Massachusetts, Michigan, Montana, Ohio, Pennsylvania, West Virginia, and Wisconsin.

A commercialization project is a cooperative venture in which the Forest Service shares the cost with partners willing to share the benefits and commercial opportunities with others. These partners work closely with USDA Forest Service personnel to ensure that structurally adequate and economical wooden structures are built in a way that maintains strict quality control and provides a means to monitor the performance of the structures.

The intended outcome of these projects is to develop structures that showcase wood-in-transportation technology and provide useful design and cost information for potential users throughout the nation. These projects build upon past knowledge gained from research and other demonstration projects. An example of a commercialization project is the construction of several bridges using the same basic design and local timber resources within a single- or multi-county area.

In Fiscal Year 2000, the USDA Forest Service awarded \$362,942 for four commercialization projects. One of these projects will result in two cost-effective southern pine, stress-laminated bridges 52 feet in length, and a 190-foot replacement timber deck on a four-span bridge in Ohio. Another project will produce 11 single-lane timber bridges in West Virginia. The third and fourth projects will produce four southern pine glue-laminated timber bridges — two in Alabama and two in Georgia.

The table that follows lists the commercialization projects funded to date.

Table 5
Total Federal Funding for
Commercialization Wood In Transportation Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Bridges to Result from all Projects*
Alabama	\$0	0	\$77,200	1	\$77,200	2
Alaska	107,000	1	0	0	107,000	4
Arizona	0	0	0	0	0	0
Arkansas	0	0	0	0	0	0
California	0	0	0	0	0	0
Colorado	0	0	0	0	0	0
Connecticut	0	0	0	0	0	0
Delaware	0	0	0	0	0	0
Dist. of Columbia	0	0	0	0	0	0
Florida	50,000	1	0	0	50,000	1
Georgia	0	0	85,000	1	85,000	2
Hawaii	0	0	0	0	0	0
Idaho	0	0	0	0	0	0
Illinois	0	0	0	0	0	0
Indiana	0	0	0	0	0	0
Iowa	124,500	1	0	0	124,500	5
Kansas	0	0	0	0	0	0
Kentucky	0	0	0	0	0	0
Louisiana	0	0	0	0	0	0
Maine	0	0	0	0	0	0
Maryland	0	0	0	0	0	0
Massachusetts	75,000	1	0	0	75,000	4
Michigan	139,000	1	0	0	139,000	5
Minnesota	0	0	0	0	0	0
Mississippi	0	0	0	0	0	0
Missouri	0	0	0	0	0	0
Montana	100,000	1	0	0	100,000	3

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Table 5 (continued)
Total Federal Funding for
Commercialization Wood In Transportation Projects
Fiscal Years 1989 through 2000

State	FY 1989-99 Funding	FY 1989-99 Number of Projects	FY 2000 Funding	FY 2000 Number of Projects	Total Funding	Total No. Bridges to Result from all Projects*
Nebraska	0	0	0	0	0	0
Nevada	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0
New Jersey	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0
New York	0	0	0	0	0	0
North Carolina	0	0	0	0	0	0
North Dakota	0	0	0	0	0	0
Ohio	100,000	1	100,742	1	200,742	7
Oklahoma	0	0	0	0	0	0
Oregon	0	0	0	0	0	0
Pennsylvania	190,000	2	0	0	190,000	13
Rhode Island	0	0	0	0	0	0
South Carolina	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0
Tennessee	0	0	0	0	0	0
Texas	0	0	0	0	0	0
Utah	0	0	0	0	0	0
Vermont	0	0	0	0	0	0
Virginia	0	0	0	0	0	0
Washington	0	0	0	0	0	0
West Virginia	2,101,074	4	100,000	1	2,201,074	56
Wisconsin	140,000	2	0	0	140,000	9
Wyoming	0	0	0	0	0	0
Total	\$3,126,574	15	\$362,942	4	\$3,489,516	111

* The total number of bridges that will result upon completion of all funded projects (FY 1989-2000).

Research

The use of wood as a construction material is being researched to optimize the balance between existing and constantly developing technology. The goal is to ensure that current and future design and construction methods receive the optimum benefit of newly developed technology. Major research activities are based on the six-year needs assessment initiated in 1992 by the USDA Forest Service's Forest Products Laboratory (FPL) at Madison, Wisconsin, and the Federal Highway Administration (FHWA). The study identified more than 200 research needs. Some of the more important needs were:

- To develop crash-tested bridge rails for longitudinal and transverse timber decks.
- To prepare guidelines and standard design details for designing modern timber bridges for minimum maintenance and long life.
- To develop economical, easy-to-use equipment and methods to conduct nondestructive testing of in-place timber bridge components, including piles.
- To evaluate new wood preservatives.

The research effort is cooperative in nature. At the core of the program are the FPL and the FHWA. Their collaborators include West Virginia University, the University of Nebraska, Iowa State University, Oregon State University, Auburn University, and other universities throughout the country.

The WIT Program is providing an opportunity for universities to design and develop new timber bridge systems. This research effort has prompted provisional adoption of stress-deck design criteria by the American Association of State Highway and Transportation Officials (AASHTO). Adoption of these design criteria has provided uniform standards for slab deck designs across the country.

Monitoring the performance of selected demonstration bridges and bridges on National Forest System land is necessary to develop and further refine economical, structurally sound designs that will ultimately meet the approval of AASHTO. Monitoring activities typically include a two-year assessment of wood moisture content and bar stress levels, one or more load tests, and intense visual inspection. Bridge monitoring is currently in progress on many demonstration bridge projects throughout the country to assess field performance of various designs. All of these activities provide information that helps improve design procedures, fabrication, construction, and erection methodologies.

Technology Transfer and Information Management

It is essential that the WIT Program be accessible to the public, including highway officials, bridge engineers, and community decision makers. For this program to be successful, information about uses of wood-in-transportation applications must be transferred and distributed to others. The National Wood In Transportation Information Center, located in Morgantown, West Virginia, helps administer the WIT Program. The center also identifies emerging technologies and stores, retrieves, and disseminates information to meet the needs of managers, planners, designers, builders, engineers, and others.

Besides overall program management, there are several primary activities occurring at the center. Some of these are:

- Administration of the demonstration grant program.
- Facilitation of technology transfer.
- Technical assistance.
- Coordination of conferences, workshops, and seminars.
- Information distribution.
- Coordination with field coordinators.

Responding to the need expressed by bridge engineers and government decision makers for up-to-date information on modern timber bridge construction, the USDA Forest Service prepared and published a design and construction manual, which can be acquired from the National Wood In Transportation Information Center by calling 304-285-1591. Other publications offered by the center include *Crossings*, the quarterly newsletter of the WIT Program; *Timber Bridge Superstructure Cost Report*; and *Contacts Report on Demonstration Project Cooperators*.

Many publications developed by the Forest Products Laboratory, such as *Standard Plans for Southern Pine Bridges*, *Plans for Crash-Tested Bridge Railings for Longitudinal Wood Decks*, and a variety of monitoring reports are also available. In Fiscal Year 2000, more than 45,000 pieces of wood-in-transportation information were distributed by the National Wood In Transportation Information Center.

As part of the technology transfer effort, the Information Center has established a website at <http://www.fs.fed.us/na/wit>. This site contains valuable information about the Forest Service's WIT Program, available publications, grant opportunities, WIT events, WIT links, and WIT Coordinators. Some specifics that you can find at the website are:

WIT Publications — This section of the website contains more than 150 individual titles divided into 16 categories.

WIT Grants and Demonstration Projects — This page on the website offers details about the cost-share program. In the future, information on demonstration projects will be available.

In addition, the Forest Products Laboratory has a website that includes electronic versions of many of FPL's publications on wood-in-transportation technology. The website address is:
<http://www.fpl.fs.fed.us/wit>

Rural Revitalization

The WIT Program aims to stabilize and revitalize the economic well-being of rural economies through service industry development and market expansion. It strives to provide greater economic diversity and stability for rural communities. As part of the overall effort of the USDA Forest Service State and Private Forestry's Economic Action Program, WIT provides a tangible, efficient example of how local economies can be expanded and revitalized.

Typical activities include:

- Emphasizing historically underutilized wood in the construction of wood-in-transportation structures.
- Creating local jobs and long-term employment prospects.
- Creating additional service industries by utilizing community resources such as local timber and local labor.

WIT projects link local, regional, and national markets. They support business expansion while helping commuters, travelers, producers, and shoppers to reach their destinations. Enhanced economic activity serves the public sector by generating additional revenue through sales, property, and income taxes. Wood-in-transportation structures can be a base for sustained economic growth by employing local labor to fabricate and erect bridges and related projects made from local lumber.

Accomplishments of the WIT Program

Following are some of the accomplishments of the Wood In Transportation Program:

- One-hundred-ninety-one vehicular and twenty-nine pedestrian timber bridge projects completed. Many demonstrate the benefits of wood as a structural material.
- Sixty-six special projects completed. Many demonstrate the use of timber in other wood-in-transportation applications such as retaining walls, portable bridges for temporary access, and marine structures.
- Four commercialization project completed.
- Increased awareness among highway officials and bridge engineers about modern timber bridges.
- Developed informative, easy-to-understand timber bridge manual and related technical information.
- Comprehensive monitoring program implemented to determine the structural adequacy of new designs.
- Developed designs using underutilized timber.
- Certification of hardwood species for structural uses.
- More than 45,000 pieces of information distributed by the National Wood In Transportation Information Center in Fiscal Year 2000.
 - Creation of a WIT website.
 - Comprehensive library that includes over 150 publications.

- *Crossings* newsletter — 5,800 distributed quarterly.
- Focused effort on commercializing developed technology.

The two tables that follow reflect accomplishments of the Wood In Transportation Program.

Table 6
Wood In Transportation Projects Funded
Fiscal Year 2000

Type of Project	Number	Federal Contribution	Cooperative Contribution
Vehicular Bridges	2	\$80,000	\$337,000
Pedestrian Bridges	1	37,500	37,500
Special Projects	5	93,000	122,750
Commercialization Projects	4	362,942	575,334
Other	1	45,000	0
Total	13	\$618,442	\$1,072,584

Table 7
Completed Wood In Transportation Projects
Fiscal Year 2000

Region	Timber Bridges		Special Projects	Commercial-ization Projects	Total
	Vehicular	Pedestrian			
Northeastern	88	9	41	3	141
Southern	51	11	17	0	79
Western	52	9	8	1	70
Total	191	29	66	4	290

BUDGET SUMMARY

The following table provides the funding history of the WIT Program by major program components.

Table 8
Funding History of the
Wood In Transportation Program
Fiscal Years 1989 through 2001

Goal	Combined 1989-1995 Final	1996 Final	1997 Final	1998 Final	1999 Final	2000 Final	2001 Final
.....Dollars in thousands							
Demonstra- tion Projects*	\$11,026	\$604	\$447	\$500	\$500	\$510	\$298
Research	6,549	770	650	650	650	650	500
Technology Transfer	4,926	596	753	700	700	690	624
Total	\$22,501	\$1,970	\$1,850	\$1,850	\$1,850	\$1,850	\$1,422

* Some figures in this table for demonstration projects may not match the figures in Table 1.

Administration of the WIT Program is assigned to the Northeastern Area, State and Private Forestry. Field locations are Morgantown, West Virginia (National Wood In Transportation Information Center), and selected Forest Service Regional Offices (Program Coordinators). The research component of the program is administered at the Forest Products Laboratory in Madison, Wisconsin.

CONTACTS

Forest Service technical advisors for the Wood In Transportation Program are located throughout the country to help implement the program. These key contacts are responsible for:

- Coordinating the application process for WIT demonstration projects.
- Coordinating local conferences, workshops, and seminars.
- Monitoring the status of projects within their regions, providing technical assistance, and disseminating information to potential users.
- Providing information to the National Wood In Transportation Information Center.

The following illustrations list the Forest Service Wood In Transportation Coordinators.

Stephen Bratkovich
USDA Forest Service
1992 Folwell Avenue
St. Paul, MN 55108-1099
Phone: 651-649-5246
FAX: 651-649-5238
Email: sbratkovich@fs.fed.us

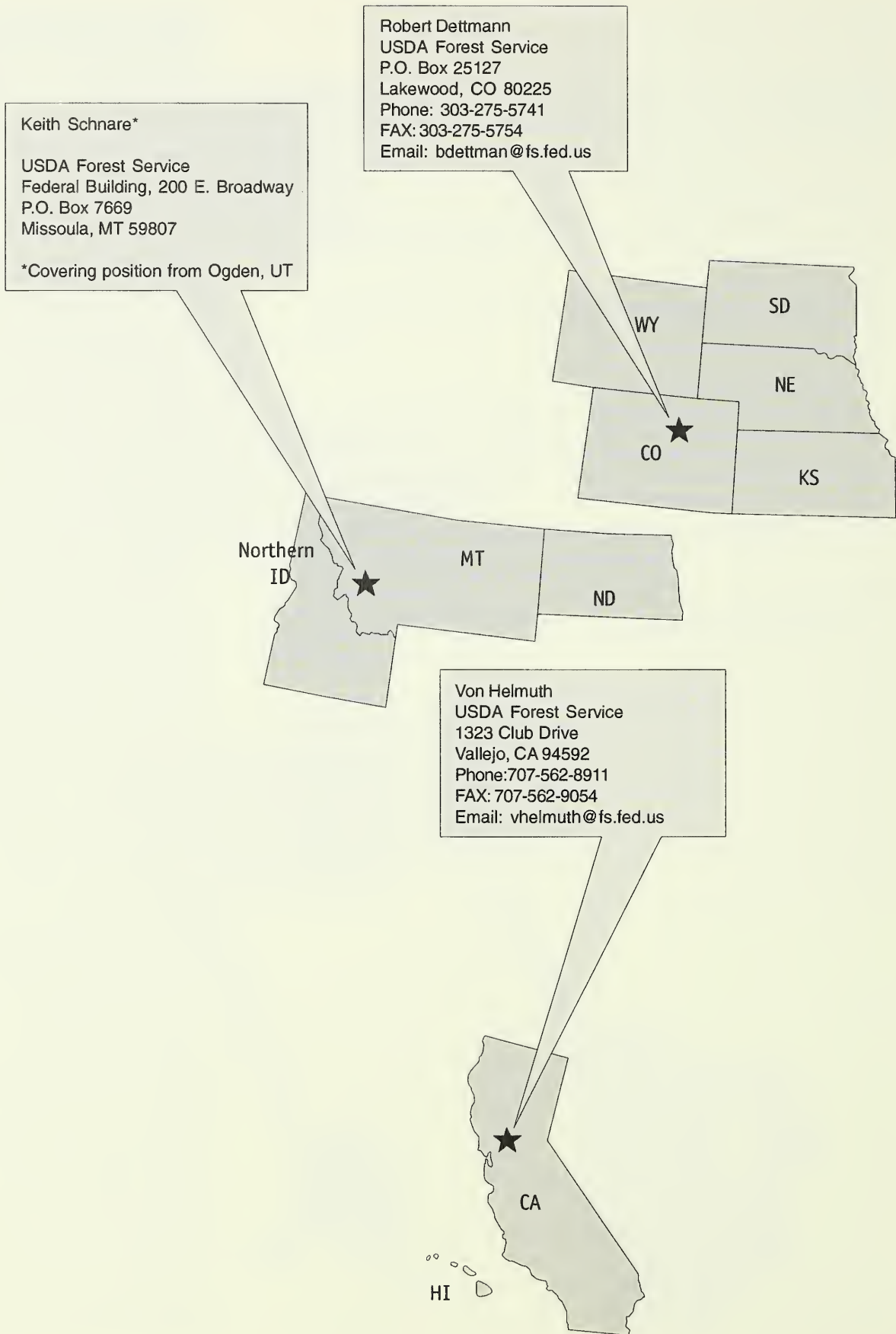


Edward Cesa
USDA Forest Service
180 Canfield Street
Morgantown, WV 26505
Phone: 304-285-1530
FAX: 304-285-1505
Email: ecesa@fs.fed.us



Steve Bush
USDA Forest Service
3301 C Street, Suite 522
Anchorage, AK 99503-3956
Phone: 907-271-2550
FAX: 907-271-2897
Email: sbush@fs.fed.us



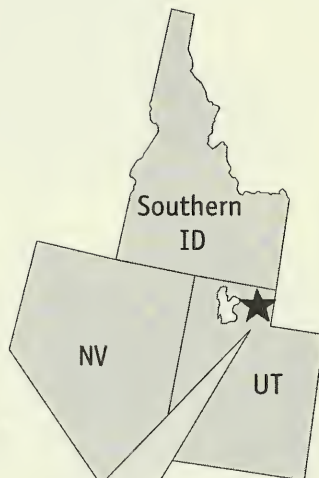




Dean Huber
USDA Forest Service
271 Mast Road, P.O. Box 640
Durham, NH 03824-0640
Phone: 603-868-7689
FAX: 603-868-7604
Email: dhuber@fs.fed.us

Karen Kenna
USDA Forest Service
1720 Peachtree Road, NW
Atlanta, GA 30367
Phone: 404-347-7206
FAX: 404-347-2776
Email: kkenna@fs.fed.us





Keith Schnare
 USDA Forest Service
 Federal Building, 324 25th Street
 Ogden, UT 84401
 Phone: 801-625-5370
 FAX: 801-625-5483
 Email: kschnare@fs.fed.us

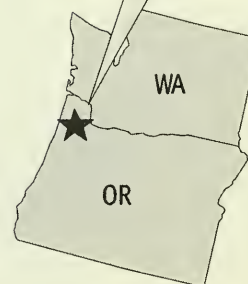


George Martinez
 USDA Forest Service
 517 Gold Ave., SW
 Albuquerque, NM 87102
 Phone: 505-842-3421
 FAX: 505-842-3800
 Email: gmartinez@fs.fed.us

William Von Segen
 USDA Forest Service
 333 SW First Avenue, P.O. Box 3623
 Portland, OR 97208
 Phone: 503-808-2348
 FAX: 503-808-2339
 Email: vonsegen@fs.fed.us

Nation-wide Assistance

Merv Eriksson, P.E.
 USDA Forest Service
 Missoula Technology and Development Center
 1800 Strand Avenue
 Missoula, MT 59801
 Phone: 406-329-3147
 FAX: 406-329-3384
 Email: meriksson@fs.fed.us



For further information, contact:

Edward T. Cesa, Program Manager

Wood In Transportation Program
Northeastern Area, State and Private Forestry
USDA Forest Service
180 Canfield Street
Morgantown, WV 26505
Phone: 304-285-1591
ecesa@fs.fed.us

Michael A. Ritter, Assistant Director

Forest Products Laboratory
USDA Forest Service
One Gifford Pinchot Drive
Madison, WI 53705-2398
Phone: 608-231-9200
mritter@fs.fed.us

For more information about Northeastern Area, State and Private Forestry programs and initiatives, visit our website at:
<http://www.na.fs.fed.us>

A National Information Center has recently been established at the St. Paul Field office to make information about State and Private Forestry programs available via the internet. The site can be visited at:
<http://www.spfnic.fs.fed.us>

WIT-01-0001